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Description

Method for backward-signaling of a transmission service which is to be used for a "Mobile Terminated-PTSN/ISDN Originated" call

When a telecommunication terminal sets up a call to another telecommunication terminal, with the called telecommunication terminal being in the service area of a mobile radio network and the calling telecommunication terminal being in the service area of another telecommunication network, it is generally possible that a transmission service which the calling telecommunication terminal requires cannot be clearly identified in the mobile radio network of the called telecommunication terminal. Accordingly, the selection of a specific transmission service is down to the called telecommunication terminal or the relevant subscriber. On the basis of the present prior art, the transmission service selected by the called telecommunication terminal is not transmitted to all network nodes which are involved in a call which is to be set up or in a data transmission which can be performed. In a mobile radio network, this particularly means that the access mobile switching centers involved in a call which is to be set up, such as a "Gateway MSC" (Mobile Switching Center) or a "Gateway MSC Server", which act as connecting network nodes between the mobile radio network and other telecommunication networks, receive no information about the transmission service which is actually to be used

message from the "BSS" (Base Station System).

The invention is based on the Internet publication 3GPP TS 29.007 V5.7.0 (2003-09) as prior art and accordingly relates to a method for backward-signaling of a transmission service which is to be used for a call which is to be set up from a first telecommunication network, in which a mobile terminal in the service area of a destination mobile switching center in a digital mobile radio network is called from the first telecommunication network via an access mobile switching center, and information fully describing the transmission service which is to be used is negotiated between the mobile terminal and the destination mobile switching center in the digital mobile radio network and is stored in the destination mobile switching center, the information which fully describes the transmission service which is to be used comprising at least one PLMN-BC information element.

It is an object of the present invention to provide a method which can be used to communicate complete information about a transmission service which is to be used for a call which is to be set up and which is incoming in a mobile radio network to an access mobile switching center in the mobile radio network, such as a "Gateway MSC" or a "Gateway MSC Server", as are described in 3GPP TR 21.905 and 3GPP TS 23.002.

The invention achieves this object for the method indicated above by virtue of the destination mobile switching center converting the PLMN-BC information element from the information fully describing the transmission service which is to be used.

into an ISUP-compliant ISDN-BC information element, and the information fully describing the transmission service which is to be used being transported, using at least one ISUP message, with the ISUP-compliant ISDN-BC information element at least to the access mobile switching center involved in the call which is to be set up, so as to effect the backward signaling.

Although at the TSG CN-#-21 standardization meeting from 9.17. - 9.19.2003, a document NP-030431 about "internetwork accounting for BS30-based services such as video" presented a method which can be used to provide billing information to a network boundary between a mobile radio network and a landline network, this method makes use of apparently unused bits of an "Optional Backward Call Indication" parameter contained in the "Address Complete Message (ACM)" or "Answer Message (ANM)" ISUP messages. This method cannot be used to achieve the object stated above, however, since the 4 free bits of the "Optional Backward Call Indication" parameter are insufficient to be able to provide all requested transmission-service-specific functions on a "Gateway MSC" or a "Gateway MSC Server". In addition, these bits are already used in some national applications and are therefore not available without restriction.

In one particularly preferred embodiment of the inventive method, the first telecommunication network used is an ISDN network, a PSTN network or a mobile radio network (PLMN). The digital mobile radio network is preferably a GSM network or a UMTS network. The method can be applied to calls in which a mobile telecommunication terminal is called in the service area of this digital mobile radio network. In this context, reference is made to "mobile terminated calls".

The inventive method allows the information fully describing

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the transmission service which is to be used to be transported from the destination mobile switching center, such as a "Visited MSC" or a "Visited MSC Server", at least to an access mobile switching center, such

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